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WHO'S FLYING OVERHEAD?

by Ron Perron (Rapbep@aol.com)

About two weeks after the World Trade Center tragedy I was playing golf in the Washington suburb of Bethesda. I could hear the continuous sound of the US Air Force jets overhead as they flew their combat air patrols (CAP) over DC. My golfing partner remarked that he was used to hearing jets in this neighborhood, after all, BWI, Reagan National and Dulles are all close to DC. Then he added that he wasn't used to those sounds being made by military aircraft on combat patrols; it made him feel uneasy. I reminded him of a slogan I had seen in the past at the entrance to some air bases, "The sounds you are hearing (jet noises) are the sounds of freedom."

I guess we're all wondering who those aircraft are overhead and from where they come. Since shortly after the WTC was attacked there have been USAF fighters, both F-16s and F-15s overhead 24 hours a day. The first patrols were airborne and in place, manned by F-16s from Langley Air Force Base in Virginia. These particular F-16s were actually from the North Dakota Air National Guard. Since Langley doesn't have any F-16s assigned, several F-16s are rotated from the North Dakota ANG into Langley for airspace protection. Until September 11th that's how airspace protection was carried out in the U.S.-by interceptor aircraft dispersed at certain air bases.

Who is Who

So who is running the show? That would be the North American Aerospace Defense Command, NORAD, at Cheyenne Mountain, Colorado (http://www.peterson.af.mil/). The NORAD is a bi-national United States and Canadian organization charged with the missions of aerospace warning and aerospace control for North America. Aerospace warning includes the monitoring of man-made objects in space, and the detection, validation, and warning of attack against North America (whether by aircraft, missiles, or space vehicles) utilizing mutual support arrangements with other commands. Aerospace control includes providing surveillance and control of the airspace of Canada and the United States.

The Air Combat Command (ACC) has provided the F-16s and F-15s and the Air Mobility Command (AMC) provides their supporting AWACS surveillance and tanker aircraft. The F-16s have come from the 121st Fighter Squadron (FS) of the DC Air National Guard (ANG) at Andrews; the 149th FS of the Virginia ANG at Richmond; Detachment 1 of the 178th FS of the North Dakota ANG from Langley and, from the 119th FS of the New Jersey ANG at Atlantic City. Other ANG units have also participated in the CAPs, including the 176th FS Wisconsin ANG at Madison; the 134th FS Vermont ANG at Burlington; and the 138th FS New York ANG, Syracuse. A little known fact is that 100 percent of the airspace defense of the U.S. is tasked to ANG fighter units across the country.

The F-15s were initially from the 27th, 71st and 94th FS at Langley. Late in October they were relieved by F-15s from the squadrons of the 4th Fighter Wing at Seymour-Johnson AFB, North Carolina. The AWACS aircraft rotate into the DC CAP area from Tinker AFB, Oklahoma. In mid-October some NATO AWACS aircraft were dispatched to the US from their bases at RAF Waddington, England and Geilenkirchen, Germany to relieve some of the Tinker-based aircraft for duty overseas. Some of these NATO aircraft have been working in the DC area.

All of these aircraft require a lot of fuel to keep them on station and the refueling efforts are a continuous rotation of KC-10s from the 2nd and 32nd Air Refueling Squadrons (ARS) and the 76th & 78th ARS of the Air Force Reserves, both located at McGuire AFB, New Jersey; KC-135s from the 183rd ARS of the Pennsylvania ANG at Pittsburgh; the 145th & 166th ARS from the OH ANG from Rickenbacker Airport, Columbus OH; the 151st ARS of the Tennessee ANG, at Knoxville; the 77th ARS at Seymour-Johnson, North Carolina; and the 106th ARS Alabama ANG at Birmingham.

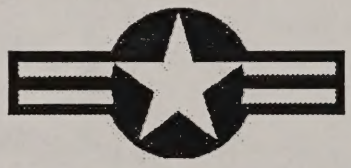
What To Listen For

The fighters are flying two combat air patrols; one over DC proper and another over what I believe to be the Camp David

area. These CAPs are centered on a "bull's-eye" center-point which may periodically change to accommodate air-space crowding, etc. Usually the F-16s are flying their CAPs in the altitude block 20-23,000 ft (LO CAP) and the F-15s fly theirs a little higher at 23-25,000 ft (HI CAP). Washington Center's Swann Sector controller has assumed control over all the military combat air patrols and their supporting activity in the area. These CAPs and their associated operating areas have been given covernames which are changed periodically.

The participants, especially the fighters, are all using daily changing call signs so it's hard to keep track of who is who. That being the case, I didn't see much use in listing them here. But, they are valid nouns of every description, i.e. Viola, Acrid, Magnet, Skit, Stool, etc. It appears that the fighter units have abandoned use of their normal squadron call signs when involved in CAPs.

However, if you hear Dragnet, Bandsaw, Chalice, Dark Star, Goliath and Thumper prefixed with a NATO phonetic (Alpha, Echo, etc.) these are the mission call signs (back-end guys) of the E-3B AWACS from Tinker. Their front-end, i.e. flight deck call sign, is Sentry prefixed with a two-digit number. The NATO AWACS use a mission call sign of Magic ## and their flight deck call sign is NATO ##. The tankers started out using a generic call sign Fueler, but in late September shifted to a series of semi-fixed call signs such as Stick, Fluff, Hightop, Gino, etc.



Where to Listen

Anyone with a radio capable of tuning the 225-400 MHz band in AM mode should be able to hear these guys. They are high enough and close enough to our area that you don't need a sophisticated antenna system. I use my Radio Shack Pro-2045 and Uniden BC-895XLT hooked to a Diamond D-130J discone up in my attic. However, I can also pick them up loud and clear with my handheld Alinco X-10T with it's stock, stubby antenna.

Their communications aren't restricted to the UHF band. The AWACS and tankers are also working with the various Washington Center controllers as they enter and exit their individual control areas. You can hear them on the published VHF air traffic control (ATC) frequencies.

IMPORTANT NOTE: The military is continuously changing/adding to its frequencies, codenames and procedures. But here are some of the frequencies in use as of late October. This information is somewhat volatile, but should provide a valuable starting place.

362.300 Cedar Lake controller and all aircraft
324.000 Primary air-to-air (A-A) for tankers and AWACS
320.900 Air refueling primary/boom
355.200 DC area coordination freq
324.000 CAP refueling/coordination freq
364.200 AWACS/NE Reg Data Link Ctl'er (Northern Lights)
295.800 Air refueling
303.000 A-A for tankers
254.200 AWACS & tankers
234.800 121st FS DC ANG Supervisor of Flight (SOF)
127.275 121st FS A-A
138.000 (AM) Langley deployed F-16s (ND ANG) A-A
139.900 (AM) 121st FS SOF
139.750 (AM) 121st FS A-A
138.450 (AM) 121st FS A-A
138.125 (AM) 119th FS NJ ANG F-16s Ops
138.425 (AM) 119th FS NJ ANG (Atlantic City) A-A
225.800 Huntress (Northeast Region Air Defense, Rome NY)
277.600 Huntress
228.700 Huntress
228.900 Huntress

What to Listen For:

Like any other component of our military, these aircraft have their own jargon. Some of it designed to conceal what's going on, some of it standard terminology, and some of it "pilot slang." Here are some terms to help you understand what you are hearing:

Uniform- UHF frequency (225-400 MHz AM mode).
Victor- VHF freqs (118-136 MHz & 138-144 MHz AM mode).
Nose "hot" - fighter weapons armed.
Nose "cold" - fighter weapons in safe mode (usually noted before refueling).
Boom- refueling boom/drogue.
Bags- external fuel tanks (used by F-15s).
Chick(s) - "tanker talk" for fighter receiving fuel.
Chick(s) in tow- fighter(s) actually hooked up to tanker refueling boom/drogue.
MARSA- Military Assumes Responsibility for Spacing (distance between aircraft in a flight).
RTB- Return to (home) base. Usually designated by a code word.
Going to Citgo or Exxon- leaving CAP to refuel.
Bull's-eye- geographically designated center point (used for reference).
BRA- Bearing, Range & Azimuth (usually given from bull's-eye reference point).
Button ##- preset frequency button on aircraft radios (usually a number from 1-20).
Push- switch to button/frequency.
SATCOM- Satellite Communications .
Track ####- track of target on AWACS radar.
Play Time- amount of time left on mission before "RTB".
Bingo or Bingo Fuel- minimum safe amount of fuel to "RTB".
NVG- Night-Vision Goggles.
Wings feeding/tanks feeding- external fuel tanks being used (used by F-16s).
Texaco or Citgo- "fighter talk" generic term for tankers.
Fish Finder- aircraft TCAS (collision avoidance system) radar.

Flying these continuous missions, which include refueling at night, has to be taxing on both the pilots and aircraft. Having listened to them now for more than a month, I can tell you that the pilots are well-trained and are professionals of the highest caliber. We don't know how long these CAPs will continue. The only benchmark we have is that during the Cuban Missile Crisis, similar activity was flown for 42 days. In a recent article in the *Baltimore Sun*, a spokesman for NORAD stated that he thought that these recent CAPs will continue long beyond that benchmark. As of late October, news reports were saying that there were continuous CAPs over Washington, DC and New York and that other CAPs were being flown aperiodically over other selected cities.

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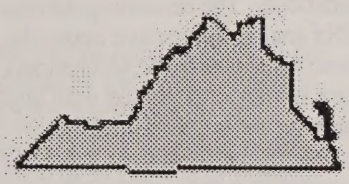
VIRGINIA'S STATEWIDE AGENCIES RADIO SYSTEM (STARS)

by Alan Henney (alan@henney.com)



Virginia is in the process of selecting a systems integrator to build its first statewide high-capacity radio system. The project, dubbed the Statewide Agencies Radio System (STARS), is one of the most enormous and comprehensive of any radio system undertaken by a government in our region. Not only does the project include two-way radio communications, but also the addition of a new mobile data system, replacement or addition of dispatch consoles for several state agencies, upgrade of the state's existing microwave network, and incorporation of a statewide intranet utilizing the microwave network.

A board composed of the secretaries of Public Safety, Technology, Transportation, Natural Resources and Finance will provide policy direction and overall governance for the STARS network. This includes review and approval of all procurement solicitations and contracts.

The 19 state agencies participating in the STARS network are: Capitol Police, Marine Resources Commission, Virginia departments of Alcoholic Beverage Control, Aviation, Conservation & Recreation, Corrections, Emergency Management, Environmental Quality, Fire Programs, Forestry, Game & Inland Fisheries, Health, Information Technology, Juvenile Justice, Military Affairs, Mines, Minerals & Energy, Motor Vehicles, State Police, and Transportation. In addition, several federal and commonwealth municipalities will participate as well.

The state has a $20 million contract with Hayes, Seay, Mattern & Mattern, Inc. and its communications subsidiary, CTA Communications Inc. CTA is providing radio engineering consultant services and prepared the STARS request for proposals. CTA will oversee the installation and integration, and assure system performance and vendor compliance for the proposed STARS system.

In its 2,690-page solicitation, the state asks bidders to describe how they intend to mount VHF (high and low band), CB, cellular and UHF antennas next to each other and to explain how they would accommodate those vehicles equipped with LOJACK! Now for the specifics...

EXISTING VSP RADIO SYSTEM USED AS BASIS

The existing Virginia State Police (VSP) radio and microwave systems are the basis for the STARS project. VSP is divided into seven divisions. Each VSP division is responsible for dispatching and coordinating the radio communications within its area of responsibility. Each VSP division for this project, with the exception of Division 7, has been subdivided into two "communications zones." Each communications zone is allocated a set of channels, which may be re-used elsewhere in the state. VSP's Division 7, which is Northern Virginia and is the smallest division geographically, will not be subdivided as are the other six divisions. All of Division 7 will lie in Communications Zone 13 with a single set of assigned channels.

VSP presently communicates on a statewide VHF high-band radio system interconnected by a 2 GHz and 6 GHz microwave network. The state describes them as "mature architectures that have been operationally and technically refined over the years." Together, this system provides approximately 90 percent of the state's troopers with mobile radio coverage using 47 VHF sites interconnected by 87 microwave sites. Portable radios are used through the use of vehicular repeaters on 458.35 to extend coverage when officers are out of their cruisers.

The majority of the state police mobile radios are approximately 20 years old. The present conventional four-channel system, originally installed in 1977, supports approximately 3,235 users (2,375 VSP personnel and 860 other federal, state and local users).

Other state agencies in Virginia operate separate mobile radio networks to support their operations. Since VSP has chosen to replace its current system, the Commonwealth decided that a shared high-capacity network is the most efficient solution.

RADIO SYSTEM SPECIFICATIONS

The Commonwealth seeks a top-of-the-line public-safety-grade high-capacity digital radio system with the most advanced digital modulation commercially available. The documents only specify a "high-capacity" radio system, but it is

unlikely that bidders will propose anything other than a trunked system.

The state specifically mentions Motorola's QPSK-C, four-level modulation, or Ericsson's GFSK modulation as candidates. Bidding vendors are required to offer their most advanced voice encoder, e.g. Improved Multiband Excitation (IMBE) vocoder. The system is required to have Advanced Encryption Standard (AES) capability with the ability to provide over-the-air rekeying of encryption keys.

The Commonwealth reserves the right to purchase any combination of analog and digital radios, including all analog or all digital. In any case, the system's infrastructure should be dual-mode so either analog or dual-mode non-fixed units may be accommodated on an ad-hoc basis. The state says the general framework for the communications system is expected to be compliant with those standards specified by the Association of Public-Safety Communications Officials-International's Project 16 committee in 1978.

The Commonwealth desires a 95 percent guaranteed area reliability for mobile radio coverage (geographically) and on the state's territorial waters. The area of the capital buildings in Richmond is the only region in the Commonwealth where the system is to be designed for in-building (portable radio) penetration. Reception in eight of the state's highway tunnels will also be included in this project.

The state desires that high-tier radios have the ability to be programmed for telephone interconnect.

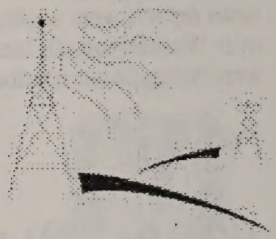
The Commonwealth estimates an initial need for 12,034 mobile STARS radios, which includes 4036 for VSP and 5000 for VDOT. Fewer than 25 percent of these VSP mobile radios will be encrypted. Forestry and Game & Inland Fisheries have estimates of 610 and 720 mobile radios, respectively. Less than 40 percent of the GIF radios will have encryption. None of the Forestry nor VDOT radios will include encryption. Overall, the state's projections show only 12 percent of the initial mobile radios having encryption.

State agencies will continue to retain, or install, new mobile repeater systems to allow personnel outside of their vehicles to communicate through the mobile radios. State estimates show an initial need for 2423 vehicular repeater systems for use with the STARS system. By comparison, the state estimates an initial need of 3249 STARS portable radios, of which 10 percent will feature encryption.

TOWERS

The state encourages the winning contractor to plan the system using the Commonwealth's existing 87 microwave sites, of which 47 are also VHF sites. If coverage is degraded, or nonexistent in some areas, however, it will be necessary to consider up to 14 additional sites. In addition, communications for the eight tunnels must be included in the project.

The offeror is requested to provide a mechanism for wireless service providers to supplement the STARS network by establishing a tower co-location lease/purchase plan. The program is desired so that the Commonwealth will have the ability to generate revenue and/or improve the STARS infrastructure by establishing partnerships with private and public wireless service providers.



MICROWAVE NETWORK

The VSP microwave system consists of 84 hops of 6 GHz digital, 2 GHz analog, and 900 MHz analog links. Some are leased. The hub of the microwave network is the state police headquarters in Richmond. Four main microwave circuits, known as the East, North, Northeast and West circuits, originate at this location.

The 6 GHz DS3 digital backbone network consists of 19 hops. Five of the seven division headquarters are served by the digital backbone. The remaining division headquarters are served by 2 GHz analog microwave networks. The channel capacity of these circuits is 36 or 48 channels. Fifteen of VSP's 47 VHF base station sites are fed with digital microwave, and the remaining are fed by analog microwave systems. The microwave system primarily supports the VSP VHF radio systems and the area office microwave telephone network. Additional analog 2 GHz, and 950 MHz systems interconnect VDOT low-band radio sites and district offices into the VSP network.

The radio system's prime control site will be constructed on the existing large dirt parking lot on the west side of VSP headquarters' radio tower. A backup control site will be in an existing warehouse behind the headquarters.

VSP expects the digital and analog microwave system to be upgraded to support mobile radio, intranet, telephone and mobile data systems for the STARS. The upgraded microwave network will replace all of the VSP data processing leased lines, including those used by the VSP area offices for the department's wide and local area networks.

Virginia's Integrated Flood Observation & Warning System (IFLOWS) monitors rainfall and stream level data which is used to help predict flash floods. Several VSP dedicated microwave channels carry this data to an emergency management computer at VSP headquarters. The state would like to incorporate these links within the STARS microwave network. The rain gauge-to-processor links would continue to use 169.5.

MOBILE DATA NETWORK

Current VSP mobile data computers operate on the cellular digital packet data (CDPD) and CS-CDPD networks. But the STARS project promises to create a new mobile data network. The new mobile data system will support access to the STARS intranet through both the STARS network as well as one or more commercial data services.

The goal is to have the mobile computer system automatically switch between STARS and commercial data services depending on the size of the file to be transferred, the coverage area of each system, the system usage charges and the destination.

The new mobile data network may be implemented on the proposed high-capacity radio system channels or on a separate set of frequencies. The private data network will have the same 95 percent desired coverage requirement as the radio system. Data transmissions may be handled by the system using either trunking (circuit switched), packet switched or a combination of these modes.

Internet Protocol (IP) addressing will be used throughout the network. Voice over IP is an option as well. The computer-aided dispatch message-switch LAN connections will be Ethernet/IEEE 802.3 (10/100BaseT). The Commonwealth desires that the system be designed to be capable of meeting the National Crime Information Center's Service Level 4 with the understanding that current wireless technology and bandwidth may limit it to Service Level 2. Mobile data will be encrypted in accordance with Criminal Justice Information Services and NCIC security requirements (minimum of 128-bit encryption).

The Commonwealth estimates an initial need for 2306 mobile computer terminals, which includes 1503 for VSP and 260 for VDOT. Optional mobile accessories under consideration include bar-code readers, biometric devices such as fingerprint capture, automatic vehicle location (AVL) units and vehicle-mounted printers.

Existing mobile computers used by VSP, Department of Mines, Minerals & Energy, and the Department of Environmental Quality, will be retrofitted and incorporated into this new network. Additional agencies are expected to join at a later date.

The mobile data system is also expected to be integrated with the VSP local area network (VSP-LAN) as part of the intranet. This includes sending and receiving messages (with attachments) from the VSP-LAN user community.

The mobile data system will permit computer terminals to communicate with each other, access numerous databases and allow dispatchers to relay message traffic to an individual unit or groups of units. Mobile units will be able to access the computer-aided dispatch (CAD) system to check calls pending, calls in progress, calls completed, event files and nearby or proximate events.

A vast array of law enforcement, public safety and general databases will be available for query by authorized mobile units. A few of the key law enforcement databases will include the Virginia Criminal Information Network (VCIN), the National Crime Information Center (NCIC) and out-of-state agencies by way of the National Law Enforcement Telecommunications System (NLETS).

An interface with the Capitol Wireless Integrated Network (CAPWIN) is also planned. The Commonwealth desires to have this ability to query Maryland and D.C. police databases. Under consideration is a message switch that would tie the D. C. area mobile data users and databases together. Grant money has been received by the University of Maryland, which is proving CAPWIN project management.

The objective of CAPWIN is to give all participating agencies the ability to automatically query each other's databases and send text messages between users. This same system would allow Virginia highway crews to coordinate with their counterparts in Maryland and D.C., and also with law enforcement. Alexandria is currently using CDPD and is considering connecting it directly into the CAPWIN switch. The CAPWIN committee issued a request for proposals for the switch this past summer (http://www.capwinproject.com/).

STATEWIDE INTRANET

A wide-area network (WAN), also known as the "intranet," is being planned as part of STARS. The STARS intranet will be capable of interconnecting the 19 participating state agencies, but configured initially for the agencies which will be operating in the mobile data environment. The state desires that the network technology used for the LAN conform to IEEE 802.3u 100 Mbps Fast Ethernet. The communication protocol will be TCP/IP.

This wide-area data network will: provide message and data switching to support the mobile data users; allow for state agency connectivity into the intranet through several technologies including microwave, fiber optic, frame relay, and others; provide a reliable and secure private data network for the upgraded VSP radio and microwave networks; provide a repository and distribution center for STARS project information, including radio personality profiles; provide wireless data access for mobile computers; provide access to the VSP-LAN; provide access to a software distribution server.

Future phases will: allow for interconnection of remote of-

fices and support of the Digital Dominion and e-Government initiatives; provide limited mobile access to the Internet.

NEW CONSOLES AND EXPANDED COMM CENTERS

The STARS project promises to renovate and expand all seven of the VSP communications centers at their present locations. At the moment, each of the seven VSP divisions have autonomous CAD systems that consist of dual DEC AlphaServers, a shared mass-storage array and at least five Windows NT Workstation dispatch terminals. VSP prefers that its current Orbacom consoles be upgrade and re-used if economically practical.

In addition to VSP, replacement or additional dispatch equipment will be provided for the following agencies: Capitol Police, Department of Emergency Management, Department of Forestry, Department of Game & Inland Fisheries, Marine Resources Commission, Department of Military Affairs, and Department of Transportation.

TRANSPORTABLE SITES

Probably one of the most fascinating aspects of this project is the creation of a transportable site as well as a separate disaster recovery trunked system site.

The transportable site (TS) could be mounted in a shelter that is part of a self-propelled vehicle or in a shelter that is mounted on a towable trailer. TS operators will have access to the STARS mobile data network. Base station radio gear installed in the unit will support two 150 MHz conventional channels and a complete five-channel 800 MHz trunked system using Commonwealth-licensed frequencies (the state has not yet specified the frequencies).

The TS is expected to be equipped with 50 800 MHz portable radios and charging stations. It will have the ability to link its 800 MHz trunked radio network to the nearest VHF STARS radio site. This will hopefully allow for seamless operation between users of the 800 MHz trunked site and those on the STARS VHF radio network.

The TS unit will include interface capabilities for telephone, microwave and to its own self-contained antenna system with its own 100-foot portable tower.

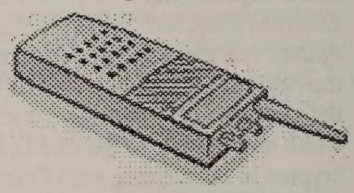
In addition to the TS, the offeror is to include a separate disaster recovery transportable site (DRTS) that can be used by VSP technicians in the event that a STARS radio site is lost.

DRTS will be at a minimum a five-channel 100 watt VHF repeater suite with an RF cabinet containing a hybrid multiplexer and combiners, site controller computer, a telephone interface panel and mobile data and radio interface equipment. The DRTS will include an AC generator and transfer switch and a generator fuel tank with a 36-hour capacity. The state desires a 100-foot crank-up tower.

PRIVATE/PUBLIC PARTNERSHIP

The Commonwealth is considering a private/public partnership for the STARS system. Operating a system under a private/public partnership, the proposal states, will involve the private vendor providing the radio, mobile computer terminal, microwave infrastructure, towers, shelters/buildings, and land. The private partner may also provide any added equipment shelters as well as maintenance necessary to meet these specifications for all of this equipment that is not provided by the Commonwealth. The vendor is welcome to make suggestions.

The state says its intention is to capture as many opportunities as possible to generate revenue from the communications system. Such opportunities could include mobile computing customers who can share common resources on the state's wireless and hard-wired networks; tower tenants who could potentially rent antenna space on new and existing towers; or third-party users of the radio system.



SCANNING THE STARS!

The state says it desires the winning vendor to provide a scanner radio that: will be programmed under the control of the Commonwealth, will be available for purchase by authorized parties, and allows monitoring of specifically programmed talkgroups. Any transmitter circuitry must be removed or destroyed. The user of the programming equipment must "commit to never program any scanner radio onto the system without prior approval from the Commonwealth, and must proactively provide security for safeguarding the scanner radio." The offeror is expected to provide a detailed plan as to how the security of this device will be safeguarded. It is the Commonwealth's desire that the security include password-protected firmware.

TALKGROUPS W/INTEROPERABILITY EMPHASIS

The state has tentatively identified 1256 talkgroups. The agencies with the most allocated talkgroups are VDOT with 541, VSP with 263, and 61 each for Forestry and

Game & Inland fisheries. Few talkgroups are designated for statewide use. Thus, each communications zone will have its own set of talkgroups.

Each communications zone, for example, will have its own VSP emergency "9-1-1" talkgroup. All radios will be equipped with this talkgroup so users many summon assistance from the VSP division dispatch center which serves that communications zone.

All radios in each communications zone will also have three interagency working "interop" talkgroups. In addition, law enforcers will have access to a SIRS/interop talkgroup in each communications zone for communications among VSP and other federal, state and local law enforcement users.

The Commonwealth's goal is to connect Virginia's 95 county and 40 independent city dispatch centers and specialized/ mutual aid networks such as COG-MARS (866 MHz), LOJACK (173.025), PMARS (866.3625), TCAP (453.8) and SIRS (39.54), directly or indirectly, into the STARS network. Some municipal and county agencies are expected to move to STARS for their primary communication.

But for agencies who decline to join STARS, the state suggests two methods for interoperability: Channels can be programmed directly into the STARS subscriber radios for agencies which continue to use conventional VHF frequencies, or a "locality network interface" could be employed. Such an interface would allow a VSP dispatcher to connect federal, county or city public safety providers into the STARS radio system. VSP would manually patch STARS users onto a common talkgroup that a municipal government dispatcher could then patch into the municipality's radio system. VSP dispatchers would control all STARS network interfaces within their division.

All dispatch consoles, not just VSP's, will have the ability to interconnect an individual or a talkgroup operating on the STARS network into another radio channel. Other channels could include conventional systems, retained agency channels, or various city and Commonwealth channels. An optional APCO Project 25 interface for Federal Law Enforcement Wireless Users Group (FLEWUG) users is also under consideration.

STARS RADIO FREQUENCIES

These are the tentative statewide frequency assignments for the STARS radio network. Mobile and portable radios will be programmed with at least one yet-to-be-determined simplex channel. Some frequencies have not been licensed in the communications zone for which they have been assigned, and frequencies for some channels have yet to be determined.

Most of the frequencies have been recently licensed for narrowband (15 KHz) operation. Several older frequencies, however, are used by various state agencies which currently use them for wideband (30 KHz) operation. The wideband channels will continue to be used by the contributing state agency during the transition period. These channels will eventually be included in the STARS pool as users migrate to the system.

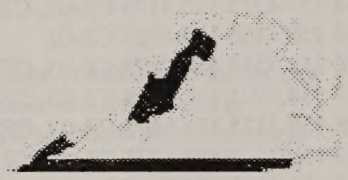
##	Base Tx	Mob Tx	Comm-Zone(s)
01	158.7225	154.6575	CZ-01, CZ-07
02	158.8575	154.8075	CZ-01, CZ-07
03	159.1875	154.9575	CZ-01, CZ-07
04	159.3375	155.1075	CZ-01, CZ-07
05	158.7975	154.7325	CZ-01, CZ-07
06	159.1125	154.8825	CZ-01, CZ-07
07	159.2625	155.0325	CZ-01, CZ-07
08	159.4125	155.2575	CZ-01, CZ-07
09	----------		CZ-01, CZ-07
10	159.2250	155.4975	CZ-01, CZ-08
11	159.3750	151.2050	CZ-01, CZ-08
12	159.4650	151.1900	CZ-01, CZ-08
13	159.1650	155.4450	CZ-01, CZ-08
14	159.0000	154.9350	CZ-01, CZ-08
15	158.7375	154.6725	CZ-02, CZ-08, CZ-12
16	158.9250	154.8225	CZ-02, CZ-08, CZ-12
17	159.2025	154.9725	CZ-02, CZ-08, CZ-12
18	159.3525	155.1225	CZ-02, CZ-08, CZ-12
19	159.2550	155.5050	CZ-02, CZ-08, CZ-12
20	159.4200	151.2800	CZ-02, CZ-12
21	158.8125	154.7425	CZ-02, CZ-11
22	159.1275	154.8975	CZ-02, CZ-11
23	159.2775	155.0475	CZ-02, CZ-11
24	159.4275	155.3175	CZ-02, CZ-11
25	158.4450	155.4525	CZ-02
26	158.7525	154.6875	CZ-03, CZ-11
27	158.9925	154.8375	CZ-03, CZ-11
28	159.2175	154.9875	CZ-03, CZ-11
29	159.3675	155.1375	CZ-03, CZ-11
30	158.8200	154.7625	CZ-03, CZ-11
31	159.1425	154.9125	CZ-03, CZ-11
32	159.2925	155.0625	CZ-03, CZ-11
33	159.4425	155.3775	CZ-03
34	159.3600	155.5725	CZ-03
35	----------		CZ-03
36	158.7675	154.7025	CZ-04, CZ-10
37	159.0075	154.8525	CZ-04, CZ-10
38	159.2325	155.0025	CZ-04, CZ-10
39	159.3825	155.1525	CZ-04, CZ-10
40	159.4350	151.4300	CZ-04, CZ-10
41	159.3000	155.5425	CZ-04, CZ-10
42	159.1350	155.4600	CZ-04, CZ-10
43	158.8275	154.7775	CZ-05, CZ-09, CZ-13
44	159.1575	154.9275	CZ-05, CZ-09, CZ-13
45	159.3075	155.0775	CZ-05, CZ-09, CZ-13
46	159.4575	155.4225	CZ-05, CZ-09, CZ-13
47	158.7825	154.7125	CZ-05, CZ-09, CZ-13
48	159.0975	154.8675	CZ-05, CZ-09, CZ-13
49	159.2475	155.0175	CZ-05, CZ-09, CZ-13
50	159.3975	155.1975	CZ-05, CZ-09, CZ-13
51	159.3300	155.5575	CZ-05, CZ-09, CZ-13

52 159.4500 155.6025 CZ-05, CZ-13
53 158.8425 154.7925 CZ-06
54 159.1725 154.9425 CZ-06
55 159.3225 155.0925 CZ-06
56 159.4725 155.4375 CZ-06
57 159.2850 155.5125 CZ-06
58 159.4050 155.5875 CZ-06
59 159.9925 156.0600 CZ-06
60 ---------- CZ-06
61 ---------- CZ-06
62 158.9850 154.9050 CZ-10, CZ-13
63 159.1750 155.4675 CZ-10
64 159.4800 156.2250 CZ-10
65 ---------- CZ-10
66 ---------- CZ-10

VSP DIVISION / STARS COMMUNICATIONS ZONE

D1 South	(Richmond)	CZ-01
D1 North	(Richmond)	CZ-02
D2 East	(Culpeper)	CZ-03
D2 West	(Culpeper)	CZ-04
D3 South	(Appomattox)	CZ-05
D3 North	(Appomattox)	CZ-06
D4 East	(Wytheville)	CZ-07
D4 West	(Wytheville)	CZ-08
D5 North	(Chesapeake)	CZ-09
D5 South	(Chesapeake)	CZ-10
D6 South	(Salem)	CZ-11
D6 North	(Salem)	CZ-12
D7 ------	(Fairfax)	CZ-13

PROJECT SCHEDULE



The deadline for proposal submissions was November 28. The Commonwealth is now evaluating the proposals. The name of the firms which submitted proposals have not been made public. Furthermore, Teresa M. Hudgins, the STARS procurement & contract officer, stated she does not have any idea when the state might award a contract for the STARS project.

The state will be conducting a pre-award evaluation of radio equipment. From the VSP headquarters tower in Richmond, propagation and functional testing will be conducted to help establish suitability of the equipment proposed for the Commonwealth's upgraded system.

The state says it anticipates the systems integrator to complete the network in accordance with the schedule below. The actual implementation schedule, however, will be determined upon further negotiations. This project will be completed in four phases, with the phases delineated by the VSP divisions.

Tentative STARS completion dates by VSP division:
07/01/03 Richmond (Phase 1)
10/01/03 Richmond Area Commonwealth System Review
10/01/04 Appomattox and Chesapeake (Phase 2)
10/01/05 Culpeper and Fairfax (Phase 3)
10/01/06 Salem and Wytheville (Phase 4)

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CHM IMF/WORLD BANK ISSUE ONLINE

The IMF/World Bank CHM special never made it in the mail, but is available online (http://henney.com/chm/). It features useful frequency info for Washington, D.C. that should be helpful for future events in town.

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Please address all correspondence to Alan. We encourage readers to submit material and write articles that relate to the hobby. All submissions are subject to editing for style and content. When submitting material please make certain we can contact you should we have any questions. We welcome frequency and visitor requests, but please include a reply envelope.

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Takoma Park, MD 20912-5414
301-270-2531 (voice) / 301-270-5774 (fax)

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The Capitol Hill Monitor is the non-profit newsletter of the *Capitol Hill Monitors*. The newsletter keeps scanner enthusiasts abreast of local meetings, frequency profiles and other topics of interest. Dues are $10 and include 12 issues (back issues cost $1 each). Kindly make checks payable to Alan Henney. Membership will be prorated accordingly in the event of a postage increase.

Join Local Scanner Enthusiasts On-Line!
We encourage computer users to take part in discussions on Frank Carson's Open Channel computer BBS (301-203-8478) or subscribe to the Scan-DC listserv by sending an e-mail to majordomo@qth.net with the words "subscribe scan-dc" (no quotes) as the message.

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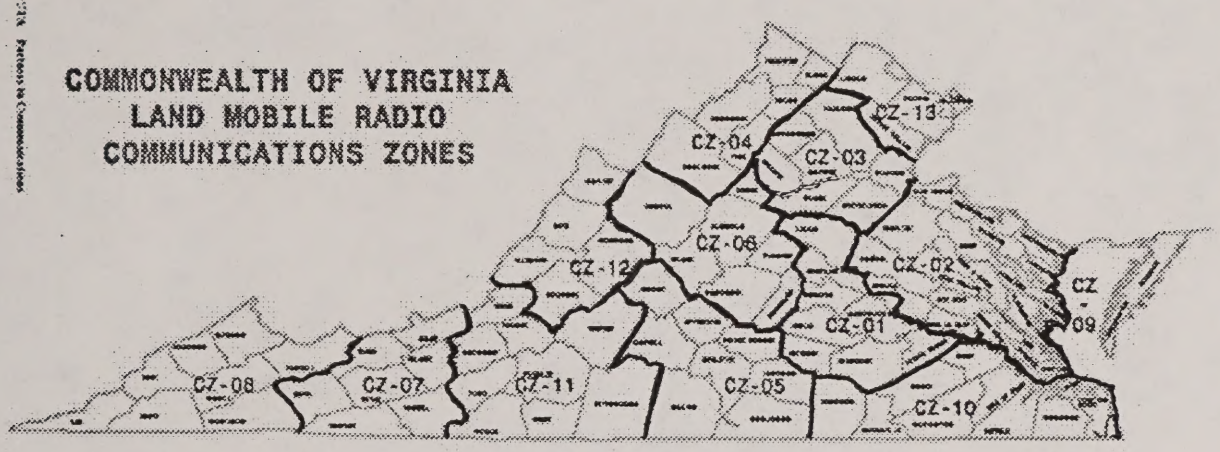
COMMONWEALTH OF VIRGINIA
LAND MOBILE RADIO
COMMUNICATIONS ZONES
CZ-13
CZ-04
CZ-03
CZ-06
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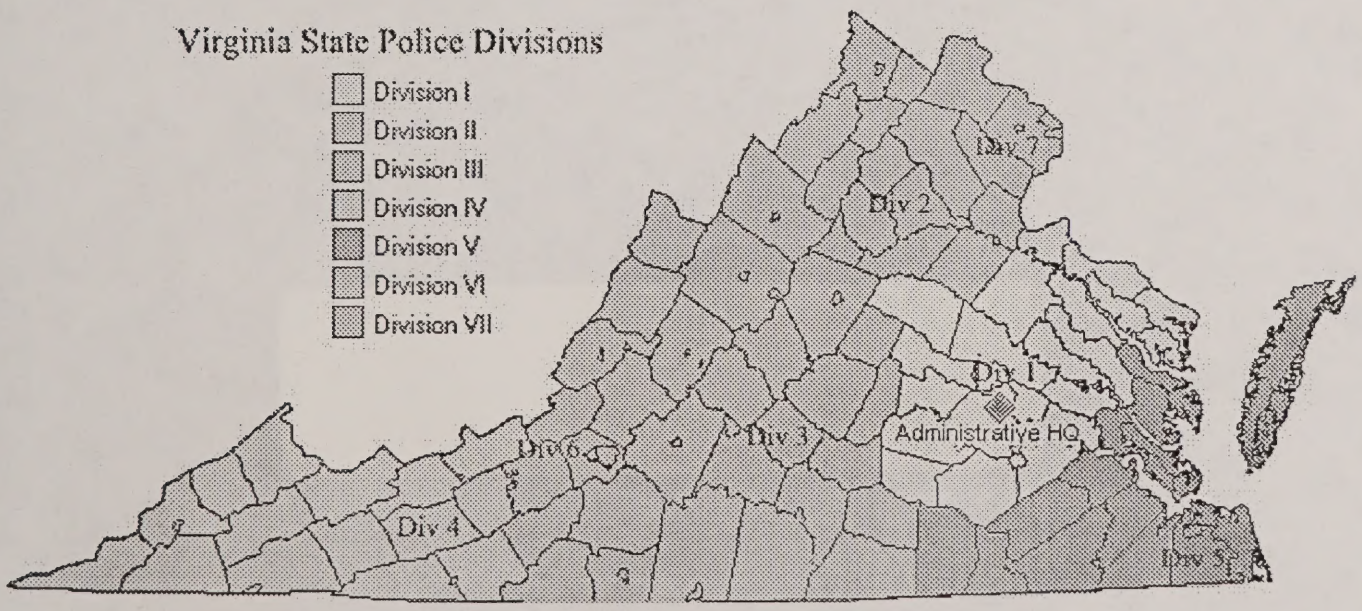
Virginia State Police Divisions
Division I
Division II
Division III
Division IV
Division V
Division VI
Division VII
Div 7
Div 2
Div 1
Administrative HQ
Div 3
Div 6
Div 4
Div 5

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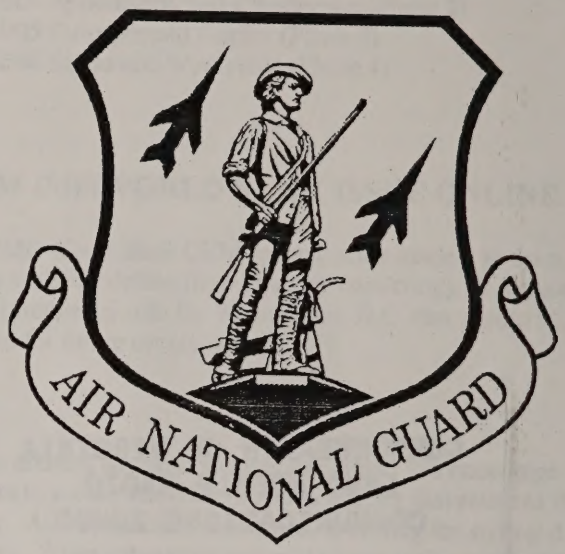

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